213 Weakness and Fatigue

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Definition

Weakness refers to a decrease in muscle strength. Fatigue is tiredness that may be either independent of, or associated with, exertion. The complaints of weakness and fatigue are among the most common and challenging problems encountered by clinicians. Because patients may use these terms to describe a variety of symptoms, the physician should attempt to obtain a precise understanding of the problem.

Technique

Weakness and fatigue are nonspecific symptoms that may be encountered in a bewildering number of medical and psychiatric disorders; they also may be the expected physiologic consequence of normal human activities. Most patients with weakness or fatigue have self-limited conditions and do not seek medical care. Among those who visit a physician, weakness and fatigue are often part of an easily identified symptom complex. The patient who presents with chronic weakness or fatigue as the sole or major complaint may represent a more difficult diagnostic and therapeutic problem.

The bedside examination is of unique value in evaluating these symptoms. The initial history and physical examination usually allow the clinician to characterize the problem as medical, psychiatric, or physiologic in origin. In a specific patient, weakness or fatigue may be due to multiple causes, or the cause may not be initially apparent.

A precise understanding of the patient's description of weakness or fatigue is imperative. Is there a loss of muscle strength, or is the problem a vague loss of energy, weariness, or lassitude? True weakness usually indicates a medical disorder. Fatigue, in contrast, may result from medical, psychiatric, or physiologic causes. Other symptoms should not be confused with weakness. For example, some patients speak of weakness when they are actually experiencing shortness of breath, generalized malaise, or joint pain and limitation of motion.

Obtain the history by encouraging the patient to "tell the story" of the problem. This unstructured format should be supplemented, as needed, by specific questions about weakness and fatigue:

- The onset and temporal course
- The distribution (localized vs. generalized)
- Exacerbating and relieving factors
- Associated signs and symptoms
- The setting in which the problem developed
- The impact on daily activities

Weakness beginning in childhood may be the result of Duchenne's muscular dystrophy. The sudden onset of weakness suggests a cerebrovascular accident; this diagnosis should be strongly considered when the weakness is localized and has a neuroanatomic distribution. Progressively more severe weakness and fatigue are seen with metastatic carcinoma. Recurring episodes of weakness should raise the question of periodic paralysis. Weakness exacerbated by effort and relieved by rest is characteristic of myasthenia gravis. Proximal muscle weakness suggests a myopathy, whereas distal muscle weakness is more consistent with a peripheral neuropathy or pyramidal tract disorder. Loss of interest in daily activities and insomnia may indicate a depressive state. Recurring episodes of apprehension, tremulousness, and palpitations are seen with generalized anxiety. The presence of fever may point to an infection, malignancy, or collagen vascular disease. Paroxysmal nocturnal dyspnea is indicative of left ventricular failure. Inflammatory bowel disease should be considered when the patient has chronic diarrhea. Weakness or fatigue that occur only after jogging, fasting, or insufficient sleep are most likely explained by normal physiologic mechanisms (Table 213.1). Physically demanding occupations and pregnancy are commonly associated with fatigue. Learn of the impact of these symptoms on the patient's routine daily activities, such as combing hair, climbing stairs, or speaking. Difficulty with combing hair and climbing stairs suggests weakness of proximal muscles. These data may help localize the problem, shed light on a specific diagnosis, or provide insight into the patient's coping skills.

Medical, surgical, and psychiatric problems should be considered as possible causes of weakness and fatigue (Tables 213.2 and 213.3). All prescription and over-the-counter medications should be listed. Frequently used medications such as antihypertensives, sedative-hypnotics, antidepressants, tranquilizers, and antihistamines are common causes of fatigue. The psychosocial history should provide a personal picture of the patient, including data on lifestyle, home life, occupational experiences, habits, and sexual practices. Interpersonal conflicts, recent losses, and threatening situations should be identified. These data are of great importance because clinical surveys of chronic weakness and fatigue cite psychosocial problems as the most common cause of these symptoms. A carefully elicited family history may identify a heritable disorder that could account for the problem. For example, there may be a strong family history of depression. An essential component of the work-up is a complete review of systems. First examine those systems discussed in the present illness; thereafter, explore all re-

Table 213.1
Selected Physiologic Causes of Weakness and Fatigue

Physical activity, excessive or inadequate
Rest and sleep, inadequate or excessive
Diet, excessive or inadequate intake
Environmental factors (e.g., heat)
Pregnancy

Table 213.2
Selected Medical Causes of Weakness and Fatigue

Neurologic (e.g., myasthenia gravis)
Endocrine-metabolic (e.g., hypothyroidism)
Infectious (e.g., infectious mononucleosis)
Musculoskeletal (e.g., rheumatoid arthritis)
Malignant (e.g., pancreatic cancer)
Hematologic (e.g., iron deficiency anemia)
Cardiac (e.g., heart failure)
Pulmonary (e.g., chronic obstructive lung disease)
Hepatic (e.g., hepatitis)
Renal (e.g., renal failure)
Inflammatory (e.g., Crohn's disease)
Miscellaneous (e.g., medication, nutritional deficiencies, surgery)

maining systems in depth. Such an approach may lead to an unsuspected problem. For example, polyuria may be the first clue to a diagnosis of diabetes mellitus. A history of dark urine should raise the question of hepatitis. The diagnosis of a somatoform disorder, such as hypochondriasis, must be considered in a patient with multiple physical symptoms and no demonstrable organic findings.

The physical examination may provide essential data that are not obtainable through the interview or laboratory studies. In particular, testing muscle strength, both individual muscles and groups of muscles, is essential to help distinguish true weakness from fatigue. The examiner should perform a detailed neuromuscular examination, checking for muscle atrophy, abnormal muscle tone, abnormal deep tendon reflexes, pathologic reflexes, fasciculations, muscle tenderness, and sensory deficits. In the presence of a neuromuscular problem, analysis of these neurologic findings may allow the clinician to distinguish between cerebral, spinal, peripheral nerve, and myopathic processes. The history should provide focus for the general physical examination, but all systems should be meticulously examined. The general appearance may suggest an endocrine disorder. Measuring the blood pressure in the erect position may document orthostatic hypotension as a cause of the weakness or fatigue. Palpating an enlarged spleen may lead to the diagnosis of infectious mononucleosis. A formal mental status examination is vital. This should include assessment of thought content, orientation, emotional status, memory, constructional ability, and abstract reasoning. Abnormalities may point to the diagnosis of early dementia or an affective disorder presenting as weakness or fatigue.

Because the history and physical examination usually provide a correct diagnosis, laboratory studies often play, primarily, a confirmatory role. When a satisfactory explanation for the weakness or fatigue does not result from the initial clinical examination, the history and physical examination should be repeated. Diagnostic possibilities should be systematically reviewed (Tables 213.1–213.3). For example, the category of endocrine-metabolic causes of weakness and fatigue include diabetes mellitus, hypoglycemia, hypopituitarism, acromegaly, Addison's disease, Cushing's syndrome, iatrogenic corticosteroid myopathy, hypothyroidism, and hyperthyroidism; serum electrolyte abnormalities such as hypophosphatemia, hypercalcemia, hypokalemia, and hyperkalemia are also associated with these symptoms and may lead to a specific diagnosis. Clues from the clinical examination may suggest that a specific laboratory test should be performed, such as the ACTH stimulation test for Addison's disease. A psychiatric diagnosis should be based on the presence of positive findings and not simply on the absence of a medical explanation for the problem. When a diagnosis cannot be made, the patient should not be told that "there is nothing wrong"; instead, the patient should be advised that careful follow-up is necessary in order to collect additional data. Thoughtful management and support of the patient are always important, particularly in instances where a diagnosis is made but no effective therapy is available, such as chronic Epstein–Barr virus infection.

Table 213.3
Selected Psychiatric Causes of Weakness and Fatigue

Anxiety disorder (e.g., generalized anxiety)
Affective disorder (e.g., depressive episode)
Adjustment disorder (e.g., grief)
Substance use disorder (e.g., sedative-hypnotics)
Personality disorder (e.g., dependent personality)
Somatoform disorder (e.g., hypochondriasis)
Organic mental disorder (e.g., dementia)

Basic Science

There is a paucity of data on the pathophysiologic mechanisms that produce weakness and fatigue. Both medical and psychiatric theory suggest that these symptoms serve a protective function.

The motor unit and its extensions to the cerebral cortex are central to understanding these symptoms. On a cellular level, the basic problem may be caused by intrinsic neuromuscular pathology or systemic disease that compromises delivery of adequate amounts of oxygen and substrate. Finally, these events may cause afferent impulses to reach the brain that are interpreted as weakness and fatigue.

Clinical Significance

Feeling weak or tired is a virtually universal human experience. For the clinician, this familiarity poses a formidable challenge: to distinguish the problem that is acute and self-limited, and often inconsequential, from the problem that is chronic and progressive, and often serious. Weakness and fatigue must never be dismissed lightly, since they are of significance to the patient and may represent the first vague warning of disease. Fortunately, the thoughtful and caring application of bedside skills will usually lead to a successful and cost-effective resolution of the problem.

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